

# Farm and Ranch Financial Management: Cash vs. Accrual Accounting

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This publication is based on the Cash vs. Accrual Appendix to the Recommendations of the Farm Financial Standards Task Force. The FFSTF is a group of approximately 50 farm financial experts from all facets of the farm financial industry across the U.S., convened in 1989 to establish acceptable farm financial guidelines for U.S. production agriculture. The recommendations of the Task Force were published in 1991. The recommendations cover three areas: Financial Reports; Financial Criteria and Measures; and Information Management. This bulletin incorporates the Task Force guidelines and discusses their use in analyzing farm and ranch financial statements.

One of the most important business decisions made by an agricultural producer is the selection of a record keeping system for the business. The system should be adequate to support decision making and the calculation of taxable income.

While other methods may be permissible, the vast majority of agricultural producers will keep their records on either:

- a. the cash receipts and disbursements method,  
or
- b. an accrual method.

Except for corporate taxpayers with revenues exceeding \$25,000,000, either method of accounting will likely be acceptable for calculating taxable income. However, it is not acceptable to keep books throughout the year using one method of accounting and then convert at year-end to another method, solely because that second method might provide a more favorable computation of taxable income. A farmer might use a cash basis record

keeping system, with subsequent adjustments to generate "accrual adjusted" statements. This would allow him to remain a cash basis taxpayer. But converting to a full accrual basis record keeping system would require that taxable income also be calculated on the accrual basis.

While a double entry, accrual accounting system would produce a correct matching of revenues and the expenses incurred to create those revenues, there are three main reasons why most agricultural producers will likely remain on a cash basis accounting system. First, an accrual system of maintaining books would require an understanding of accounting principles and concepts that most farmers and ranchers simply do not have. Second, if required to maintain an accrual system, most farmers and ranchers would be forced to incur significant costs either to hire an accountant or to pay an outside accounting firm to keep their records. Third, a cash system offers flexibility in tax planning. Thus, because of simplicity and relatively inexpensive maintenance, most agricul-



tural producers select the "cash receipts and cash disbursements" method for maintaining their books and calculating taxable income.

In simple terms, the primary difference between the accrual basis method and the cash basis method is the timing of when income and expenses are recognized and recorded on the income statement. The cash basis generally recognizes income when cash is received and expenses when cash is paid. The accrual system, on the other hand, recognizes income when it is earned (e.g., the creation of assets such as accounts receivable) and expenses when they are incurred (e.g., the creation of liabilities such as accounts payable). The accrual system attempts to record the income of the business in the specific period of time it was earned by the business, and then match the expenses incurred in producing that income. The result of "matching" the revenues with the expenses incurred to create the revenues is a much more realistic reflection of net income for the period.

Unfortunately, taxable income computed on a cash basis is often used as a measure of business performance. The results can be very misleading. A business can be going broke and still generate a positive cash basis income for several years by building accounts payable, accruing but not paying expenses, selling assets, and not replacing capital assets as they wear out. Numerous studies have demonstrated that strictly cash basis analysis can lead to lags of 2 years or more in recognizing profitability problems. Cash basis accounting also can delay recognition of profits during periods of business growth and recovery. This is due to the length of the business's cash conversion cycle, i.e., the time from the start of the production process until cash is finally received from the sale of the output. The unreliability of cash basis income statements as a measure of business performance was further documented by a research study at the University of Illinois. The study analyzed income for 151 cash grain farmers over a 6-year period. It found an 85 percent average annual difference in net farm income when measured on an accrual adjusted basis versus a cash basis, and in individual cases up to a 400 percent difference.

Balance sheets prepared solely from cash basis records will not include accrual items and also can be just as misleading as to a business's financial position. For example, a complete balance sheet would include inventories of commodities raised on the farm, accounts receivable, prepaid expenses,

cash invested in growing crops, accounts payable, accrued expenses and deferred taxes. Many computerized accounting systems, and tax preparers who work with only cash based records, will generate balance sheets which look accurate but do not include many of those items. It is essential for accurate income analysis, as well as for accurately measuring the business's financial position, that complete balance sheets, including accrual items, be prepared at the beginning and end of the period for which income is measured.

The accrual basis of maintaining financial records is the most accurate method of measuring financial performance or business profitability. This is especially true for agriculture because:

1. Most farm businesses value inventories at market value;
2. Work in process is generally valued at direct cost only;
3. Agricultural producers frequently make substantial prepayments for supplies, rents, etc.; and
4. Farms and ranches tend to have relatively long production/inventory cycles.

Very few agricultural producers are currently using accrual accounting systems. Therefore, the Task Force has recommended using a process by which cash basis income data can be adjusted to produce an approximation of accrual income. The result is an "accrual adjusted" income statement. The only requirements are accurate records of cash receipts and cash disbursements for the period being analyzed, and complete balance sheets (i.e., including accrual items) as of the beginning and end of the period.

The approximate accrual income generated differs from an accrual income as defined by GAAP in that inventories may be valued at their current market value rather than their cost, and work in process (e.g., growing crops) is valued by direct costs only, whereas GAAP would also include indirect labor and allocated overhead.

The process for adjusting cash basis income to approximate accrual income is outlined in the following diagram. "Beginning" and "ending" refer to information from the balance sheets as of the beginning and the end of the accounting period.



CASH BASIS	ADJUSTMENTS	ACCURAL BASIS
Cash receipts	<ul style="list-style-type: none"> <li>- Beginning inventories</li> <li>+ Ending inventories</li> <li>- Beginning accounts receivable</li> <li>+ Ending accounts receivable</li> </ul>	Gross revenues
Cash disbursements	<ul style="list-style-type: none"> <li>- Beginning accounts payable</li> <li>+ Ending accounts payable</li> <li>- Beginning accrued expenses</li> <li>+ Ending accrued expenses</li> <li>+ Beginning prepaid expenses</li> <li>- Ending prepaid expenses</li> <li>+ Beginning unused supplies (i.e., fuel, chemicals, seed...)</li> <li>- Ending unused supplies</li> <li>+ Beginning investment in growing crops</li> <li>- Ending investment in growing crops</li> </ul>	Operating expenses
Depreciation expense	No adjustments made (see Note 1)	Depreciation expense
Cash Net Income, Pre-tax		Accrual Adjusted Net Income, Pre-tax
Cash income taxes and social security tax payments	<ul style="list-style-type: none"> <li>- Beginning income taxes and social security taxes payable</li> <li>+ Ending income taxes and social security taxes payable</li> <li>- Beginning current portion of deferred tax liability</li> <li>+ Ending current portion of deferred tax liability (see Note 2)</li> </ul>	Accrual adjusted income taxes and social security taxes
Cash Net Income, After Tax		Accrual Adjusted Net Income, After Tax

NOTE 1: Because depreciation is a non-cash expense, technically it would not be reflected on a cash basis income statement. Instead the statement would show the cash payments for property, facilities and equipment rather than allocating the cost of the asset over its useful life. However, because the Internal Revenue Code requires capital assets to be depreciated, even for cash basis taxpayers, the common practice is to record depreciation expense for both cash basis and accrual basis income accounting.

NOTE 2: It is possible to have an income tax and social security tax receivable (refund due) or a deferred tax asset. In these instances the signs (+/-) for the asset amounts as of the beginning and end of the period would be reversed when making the accrual adjustments.

In order to track the logic behind the cash to accrual adjustment process, consider the following example of a cash to accrual adjustment on grain sales.

	Cash receipts from grain sales during 19X1	\$150,000.00
less:	Beginning grain inventory (grain sold in 19X1 but not produced in 19X1)	-40,000.00
plus:	Ending grain inventory (grain produced in 19X1 but not sold in 19X1)	<u>+28,000.00</u>
equals:	Accrual grain revenue (the approximate value of grain produced in 19X1)	\$138,000.00

Consider a second example of an expense adjustment for accrued interest.

	Cash disbursements for interest paid in 19X1	\$36,000.00
less:	Beginning accrued interest (interest paid in 19X1 for funds used in 19X0)	-9,000.00
plus:	Ending accrued interest (interest charged on funds used in 19X1, but not paid in 19X1)	<u>+7,000.00</u>
equals:	Accrual interest expense (the approximate cost of borrowed funds used in 19X1)	\$34,000.00

The same logic can be applied to help understand the cash to accrual adjustment for other accrual items. The basic rule to remember when making the cash to accrual adjustment is that an increase in an accrual type asset item will cause net income to increase, while an increase in an accrual type liability item will cause net income to decrease.

Converting from financial statements based on cash accounting to accrual adjusted financial statements can be a very simple or a very complex process, depending on two factors. One factor is the amount and degree of detail in the information available. The other factor is the structure of the income statement —whether it will reflect a detailed analysis of different enterprises or comparisons of line item revenues and expenses.

The simplified method used in the example financial statements will yield the same net income figure and balance sheet totals. However, because the individual accounts (such as individual enterprise revenue and expense accounts, allocated overhead accounts, etc.) are not adjusted, the determination of meaningful enterprise cost and return information is virtually impossible.

A more involved method would require a detailed enterprise accounting system with the adjustments for the change between beginning and ending accounts being posted directly to the individual accounts. While such detail can provide very valuable management information, it would



normally require someone very knowledgeable about accounting, the help of an accountant, or assistance from a professional farm business consultant.

Review the example balance sheets and income statements for Cash Grain Farms to develop a better understanding of the differences between statements based on accrual adjusted information and statements based on cash accounting.

Figure 1. Balance Sheet (Cost Basis) — Based on Cash Accounting

CASH GRAIN FARMS			
Balance Sheet			
December 31, 19X1			
(end of year)			
ASSETS		LIABILITIES	
<b>Current Assets</b>		<b>Current Liabilities</b>	
Cash	\$23,000	Notes Payable	\$56,000
Supplies, Purchased	<u>10,000</u>	Current Portion Term Debt	<u>8,000</u>
<b>TOTAL CURRENT ASSETS</b>	<b>\$33,000</b>	<b>TOTAL CURRENT LIABILITIES</b>	<b>\$64,000</b>
<b>Non-Current Assets</b>		<b>Non-Current Liabilities</b>	
Machinery & Equipment	\$190,000	Notes	\$128,000
Buildings & Improvements	140,000	Mortgages	<u>243,000</u>
Land	<u>510,000</u>		
<b>TOTAL NON-CURRENT ASSETS</b>	<b>\$840,000</b>	<b>TOTAL NON-CURRENT LIABILITIES</b>	<b>\$371,000</b>
		<b>TOTAL LIABILITIES</b>	<b>\$435,000</b>
		<b>TOTAL OWNER EQUITY</b>	<b>\$438,000</b>
<b>TOTAL ASSETS</b>	<b>\$873,000</b>	<b>TOTAL LIABILITIES &amp; OWNER EQUITY</b>	<b>\$873,000</b>

Figure 2. Balance Sheet (Cost Basis) — Including Accrual Items.

CASH GRAIN FARMS			
Balance Sheet			
December 31, 19X1			
(end of year)			
ASSETS		LIABILITIES	
<b>Current Assets</b>		<b>Current Liabilities</b>	
Cash	\$23,000	Accounts Payable*	\$ 5,000
Accounts Receivable*	27,000	Notes Payable	56,000
Supplies, Purchased	10,000	Current Portion, Term Debt	8,000
Grain Inventory*	80,000	Accrued Interest*	21,000
Prepaid Expenses*	3,000	Income & Social Security Taxes Payable*	9,000
Investment in Growing Crops*	<u>20,000</u>	Deferred Taxes*	<u>34,000</u>
<b>TOTAL CURRENT ASSETS</b>	<b>\$163,000</b>	<b>TOTAL CURRENT LIABILITIES</b>	<b>\$133,000</b>
<b>Non-Current Assets</b>		<b>Non-Current Liabilities</b>	
Machinery & Equipment	\$190,000	Notes	\$128,000
Buildings & Improvements	140,000	Mortgages	<u>243,000</u>
Land	<u>510,000</u>		
<b>TOTAL NON-CURRENT ASSETS</b>	<b>\$840,000</b>	<b>TOTAL NON-CURRENT LIABILITIES</b>	<b>\$371,000</b>
		<b>TOTAL LIABILITIES</b>	<b>\$504,000</b>
		<b>TOTAL OWNER EQUITY</b>	<b>\$499,000</b>
<b>TOTAL ASSETS</b>	<b>\$1,003,000</b>	<b>TOTAL LIABILITIES &amp; OWNER EQUITY</b>	<b>\$1,003,000</b>

\*These accounts were not reflected on the balance sheet prepared using the cash basis of accounting (Figure 1).



Figure 3. Balance Sheet (Cost Basis) — Including Accrual Items.

CASH GRAIN FARMS			
Balance Sheet			
December 31, 19X0			
(beginning of year)			
ASSETS		LIABILITIES	
<b>Current Assets</b>		<b>Current Liabilities</b>	
Cash	\$15,000	Accounts Payable	\$17,000
Accounts Receivable	22,000	Notes Payable	62,000
Supplies Purchased	8,000	Current Portion Term Debt	8,000
Grain Inventory	60,000	Accrued Interest	23,000
Prepaid Expenses	4,000	Income & Social Security Taxes Payable	6,000
Investment in Growing Crops	<u>16,000</u>	Deferred Taxes	<u>21,000</u>
<b>TOTAL CURRENT ASSETS</b>	<b>\$125,000</b>	<b>TOTAL CURRENT LIABILITIES</b>	<b>\$137,000</b>
<b>Non-Current Assets</b>		<b>Non-Current Liabilities</b>	
Machinery & Equipment	\$206,000	Notes	\$132,000
Buildings & Improvements	150,000	Mortgages	<u>247,000</u>
Land	<u>510,000</u>		
<b>TOTAL NON-CURRENT ASSETS</b>	<b>\$866,000</b>	<b>TOTAL NON-CURRENT LIABILITIES</b>	<b>\$379,000</b>
		<b>TOTAL LIABILITIES</b>	<b>\$516,000</b>
<b>TOTAL ASSETS</b>	<b>\$991,000</b>	<b>TOTAL OWNER EQUITY</b>	<b>\$475,000</b>
		<b>TOTAL LIABILITIES &amp; OWNER EQUITY</b>	<b>\$991,000</b>

Figure 4. Income Statement — Cash Basis.

CASH GRAIN FARMS			
Year Ending December 31, 19X1			
<b>RECEIPTS</b>			
Cash Grain Sales	\$150,000		
Government Program Payments	<u>25,000</u>		
<b>TOTAL CASH RECEIPTS</b>			<b>\$175,000</b>
<b>EXPENSES</b>			
Cash Operating Expenses	\$ 85,000		
Interest Paid	<u>37,000</u>		
<b>TOTAL CASH EXPENSES</b>		<b>\$122,000</b>	
Depreciation*	<u>\$ 27,000</u>		
<b>TOTAL EXPENSES</b>			<b>149,000</b>
Net Farm Income from Operations (cash basis)			\$ 26,000
Gain/Loss on Sale of Farm Capital Assets	<u>\$ 0</u>		
Net Farm Income, Before Tax (cash basis)			\$ 26,000
Income Taxes & Social Security Taxes Paid	<u>\$ 8,000</u>		
<b>NET FARM INCOME, AFTER TAX</b>			
(cash basis)			<b>\$ 18,000</b>

\*Remember, because the Internal Revenue Code requires capital assets (machinery, equipment, buildings, etc.) to be depreciated over the useful life of the assets, the common practice, even with cash basis accounting, is to record a depreciation charge.



Figure 5. Income Statement — Accrual Adjusted Basis.

CASH GRAIN FARMS			
Year Ending December 31, 19X1			
<b>REVENUES</b>			
Cash Receipts from Grain Sales	\$150,000		
Change in Grain Inventory	+20,000		
Government Program Payments	25,000		
Change in Accounts Receivable	+5,000		
<b>GROSS REVENUES</b>			<b>\$200,000</b>
<b>EXPENSES</b>			
Cash Disbursements for Operating Expenses	\$ 85,000		
Change in Accounts Payable	-12,000		
Change in Prepaid Expenses	+ 1,000		
Change in Unused Supplies	- 2,000		
Change in Investments in Growing Crops	- 4,000		
Depreciation	<u>27,000</u>		
<b>TOTAL OPERATING EXPENSES</b>		<b>\$ 95,000</b>	
Interest Paid	\$ 37,000		
Change in Accrued Interest	- 2,000		
Accrual Interest Expense		<u>35,000</u>	
<b>TOTAL EXPENSES</b>			<b>\$130,000</b>
Net Farm Income from Operations			<b>\$ 70,000</b>
Gain/Loss on Sale of Farm Capital Assets	<u>\$ 0</u>		
Net Farm Income			<b>\$ 70,000</b>
Income Taxes & Social Security Taxes Paid	\$ 8,000		
Change in Income Taxes & Social Security Taxes Payable	+3,000		
Changes in Current Portion of Deferred Taxes	+13,000		
Accrual Income Taxes & Social Security Taxes			<u>\$ 24,000</u>
<b>NET FARM INCOME, AFTER TAX (accrual basis)</b>			<b>\$ 46,000</b>

### Balance Sheet — Compare 19X1 Based on Cash Accounting to the Statement Including Accrual Items

Although both balance sheets were prepared for the same firm as of the same date, they present a very different picture of Cash Grain Farms' financial position because of the accounting method used.

On a balance sheet prepared from cash basis records, the following accounts are not recorded at all:

- accounts receivable
- inventories of grain raised on the farm
- prepaid expenses
- accounts payable
- accrued interest
- income taxes and social security taxes payable
- deferred taxes

Compare Figure 1 (cash basis) with Figure 2 (including accrual items). Total assets were greater by \$130,000 (from \$873,000 to \$1,003,000) and total liabilities were greater by \$69,000 (from \$435,000 to \$504,000). Owner equity was greater by \$61,000 (from \$438,000 to \$499,000). These significant changes occurred because accrual accounting resulted in the recording of all assets and all liabilities regardless of whether or not cash had been paid.

### Income Statement — Compare 19X1 Cash Basis to Accrual Adjusted Basis

Cash Grain Farms appears to be moderately profitable on a cash basis. However, after adjusting the cash basis income statement to approximate an accrual basis income statement for the same period, net income after tax increased from \$18,000 to \$46,000. Because of the accrual adjustments, gross revenues were greater by \$25,000 (from \$175,000 to \$200,000) while total expenses were less by \$19,000 (from \$149,000 to \$130,000). However, because of the accrued and deferred income taxes,



the deduction for income taxes is increased by \$16,000 (from \$8,000 to \$24,000).

After making the accrual adjustments to the income statement, Cash Grain Farms was shown to be *more profitable* than had otherwise been portrayed by the cash basis method of accounting.

However, the more critical situation would occur when the accrual adjusted net income showed the business to be *less profitable* than had otherwise been portrayed by the cash basis method of accounting. In such a case, the agricultural producer is simply not doing as well, from a financial performance or business profitability standpoint, as he/she may have been led to believe by relying solely on cash basis income statements.

As the preceding illustration shows, computing income on a cash basis can materially misrepresent "true" profitability for an accounting period when there is a time lag between the exchange of goods and services and the related cash receipt or cash disbursement. However, such distortion can be substantially reduced by also considering the net changes in certain balance sheet accounts.

Return to the example of Cash Grain Farms. A quick way to convert the cash basis net income figure of \$18,000 to the adjusted accrual income of \$46,000 is simply to add or subtract the various net changes in inventories, accounts receivable, accounts payable, and other noncash transactions affecting the "true" profitability of the operation. The net changes affecting "true" net income of Cash Grain Farms for the year 19X1 are shown below.

	12/31/19X0	12/31/19X1	Net Change
Inventories			
grain	60,000	80,000	+20,000
supplies purchased	8,000	10,000	+2,000
investment in growing crops	16,000	20,000	+4,000
Accounts Receivable	22,000	27,000	+5,000
Prepaid Expenses	4,000	3,000	-1,000
Accounts Payable	17,000	5,000	-12,000
Accrued Interest	23,000	21,000	-2,000
Income Taxes & Social Security Taxes Payable	6,000	9,000	+3,000
Current Portion of Deferred Tax Liability	21,000	34,000	+13,000

Figure 6 presents a standard, simplified format for converting a cash basis income statement to an accrual adjusted income statement using the net changes in the balance sheet accounts. This abbreviated format is useful if the objective of the analysis is only to determine the approximate level of profitability after matching revenues with the expenses incurred to create the revenues.

Figure 6. Using Net Changes in Non-cash Transactions to Convert Net Income from Cash to Accrual Adjusted.

CASH GRAIN FARMS January 1 to December 31, 19X1	
	Year Ending 12/31/X1
Cash Net Farm Income, After Tax	\$18,000
Increase in Inventory	26,000
Decrease in Inventory	( )*
Increase in Accounts Receivable	5,000
Decrease in Accounts Receivable	( )*
Increase in Prepaid Expenses	
Decrease in Prepaid Expenses	( 1,000)*
Decrease in Accrued Interest	2,000
Increase in Accrued Interest	( )*
Decrease in Accounts Payable	12,000
Increase in Accounts Payable	( )*
Decrease in Income Taxes & Social Security Taxes Payable	
Increase in Income Taxes & Social Security Taxes Payable	( 3,000)*
Decrease in Deferred Tax Liability	
Increase in Deferred Tax Liability	(13,000)*
<b>ACCRUAL ADJUSTED NET FARM INCOME, AFTER TAX</b>	
(sum of above)	<b>\$46,000</b>

\*The parantheses signify changes in the balance sheet accounts that decrease "true" net income. These entries are to be subtracted when calculating the accrual adjusted net income from cash basis net income.

In summary, cash basis (or cash receipts and cash disbursements) accounting methods are relatively simple and easy to maintain because the checkbook is the primary source of all data entries. Remember: no transaction is recorded unless cash is paid or received (check and cash are considered the same for this purpose). However, cash basis accounting can present a distorted financial position (because the balance sheet may not present all assets or liabilities) and a misleading profitability picture (because revenues are not matched with expenses incurred to create those revenues).



Accrual accounting methods require more complex record-keeping systems. However, accrual accounting presents a correct financial position (because all assets and all liabilities are recorded on the balance sheet) and a "true" profitability picture (because revenues are matched against the expenses incurred to create those revenues).

An agricultural producer can enjoy both the simplicity of cash basis accounting and the correctness of accrual accounting. The best of both worlds can occur by:

- maintaining complete cash basis income (receipts) and expense (disbursements) records throughout the year;
- preparing a complete balance sheet (including accrual items) at the beginning and end of each year; and
- then making the simple "conversion" of the resulting cash basis net income to determine the accrual adjusted net income.

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